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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,995	01/19/2001	David Alumot	002187 USA/C03/PDC/WF/DB	1810

32588 7590 08/27/2002

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER	
MILLER, MARTIN E	

ART UNIT	PAPER NUMBER
2623	9

DATE MAILED: 08/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.	Applicant(s)	
09/765,995	ALUMOT ET AL.	
Examiner	**Art Unit**	
Marlin Miller	2623	

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *preliminary amendment B received 4-4-02* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *96-105* is/are pending in the application.

4a) Of the above claim(s) *1-95* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *96-105* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. This office action replaces the office action sent March 26, 2002 which did not consider the preliminary amendment, which cancelled claims 1-95 and replaced them with new claims 96-105.

2. Two preliminary amendments have been filed with respect to this case. Preliminary amendment A made changes to the specification beginning at page 6; this amendment has been entered in its entirety.

3. Preliminary amendment B made changes to both the specification cancelled claims 1-95 and entered new claims 96-105. However, of preliminary amendment B, only the claim amendments have been entered as well as the first two amending entries to the specification. Specification amendments starting at page 3 of the preliminary amendment have not been entered because the direction indicating where the specification should be amended did not match the specification itself. From looking at the amendment, the examiner believes that the confusion begins at the amendment on "page 2, please delete the fifth full paragraph", there is no fifth full paragraph on page 2, only a paragraph bridging pages 2 and 3.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 104 recites the limitation " said image sensor " in claim 96, however, no image sensor is claimed.. There is insufficient antecedent basis for this limitation in the claim.

7.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 96, 100, 101 and 104 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ohtombe et al. (hereinafter Ohtombe), US 4764969.

As per claim 96, Ohtombe teaches:

an illumination source illuminating said substrate (figure1, elements 3 and 4);

first collection optics receiving light and outputting inspection signals (figure 1, element 4);

a comparator (fig. 2, comparison section 45)calculating a difference between said inspection signals and a reference signal to identify locations on said substrate suspected of having defects thereupon based on a threshold (col. 3, ll. 48-52) , and outputting suspect location data (col. 3, ll. 52-55) ;

second collection optics receiving light and outputting images according to said suspect location data (col. 5, ll. 1-12); and

a defect classifier receiving (col. 5, ll. 22) and classifying (defect/no defect) said images (col. 5, ll. 37-42).

As per claim 100, Ohtombe teaches:

wherein said second collection optics comprises an imaging sensor (ITV camera, col. 5, ll. 12-14).

As per claim 101, Ohtombe teaches:

wherein second collection optics further comprises bright field collection optics (col. 5, ll. 12-28, in particular ll. 26-28)

As per claim 104, Ohtombe teaches;

further comprising an image processor (fig. 1, elements 5 and 12) receiving an output from said image sensor and outputting said images (col. 6, ll. 13-19).

As per claim 105, Ohtombe teaches:

wherein said threshold is an adaptive threshold (col. 3, ll. 45-48 and col. 4, ll. 51-61).

Ohtombe teaches that each section of the wafer as shown in figure 2 has its own threshold value stored in memory. These distinct threshold values requires that the comparison section adapt its threshold criteria to that stored in memory for each particular section, thereby meeting the limitation of an adaptive threshold.

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claim 97 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtombe.

As per claim 97, Ohtombe teaches a light source that provides almost horizontal irradiation. However, Ohtombe does not specifically teach that the light is a laser beam. It would have been obvious to one of ordinary skill in the art to use a laser beam as illumination because a laser light source would reduce scattering and provide a more accurate image, particularly when the imaging device has a 1-micrometer resolution in such a system as Ohtombe (col. 5, ll. 20).

12. Claim 98 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtombe further in view of Maeda et al. (hereinafter Maeda), US 4791586.

As per claim 98, Ohtombe teaches the use of an ITV. However, Maeda teaches:

wherein the first collection optics comprises a plurality of sensors (optical charge coupled devices, figure 2, elements 5a and 5b). It is well known that CCDs are made up of a plurality of image sensors. It would have been obvious to one of ordinary skill in the art to substitute the CCD for the industrial television of Ohtombe because of the ready availability of CCDs and the ease of use CCDs.

13. Claim 99 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtombe and Maeda, further in view of Sandland.

As per claim 99, Ohtombe does not specifically teach darkfield imaging. However, Sandland teaches:

wherein said first collection optics further comprises dark field collection optics (col. 19, ll. 31-33, 38-40, 50-51).

It would have been obvious to one of ordinary skill in the art to utilize the teachings of Sandland's darkfield image processing features with Ohtombe's defect detection system so that an image with an acceptable signal to noise ratio can be obtained (Sandland, col. 19, ll. 25-30). In addition, Sandland teaches the ease of having both brightfield and darkfield imaging within the same apparatus (col. 19, ll. 50-51).

As per claims 102, Sandland teaches:

wherein said dark field collection optics includes a turret carrying a plurality of objectives thereupon (figure 19, element 608, col. 23, l. 63-col. 26, l. 25). It would have been obvious to one of ordinary skill in the art to use the adjustable turret of Sandland in the microscopic system of Ohtombe to increase the speed at which the hand-off positioning of the objective lens due a machine placement being more precise than hand placement of the lenses.

14. Claim 103 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtombe, further in view of Sandland.

As per claim 103, Ohtombe does not specifically teach a turret for his microscopic imaging. However, Sandland teaches:

wherein said bright field collection optics includes a turret carrying a plurality of objectives thereupon (figure 19, element 608, col. 26, l. 25-col. 28, l. 65).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Miller whose telephone number is (703) 306-9134. The examiner can normally be reached on Monday-Friday, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

mem
August 23, 2002